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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/496,120	02/01/2000	GIRIDHAR D. MANDYAM	NC17089	5752

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EXAMINER

BAYARD, EMMANUEL

ART UNIT	PAPER NUMBER
2631	

DATE MAILED: 12/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/496,120

Applicant(s)

MANDYAM, GIRIDHAR D.

Examiner

Emmanuel Bayard

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 September 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,5-7,10-14,20 and 21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,5-7,10-14,20 and 21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other:

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DETAILED ACTION

Claim rejections

1. Claim 20 is rejected under 37 CFR 1.75© as being incomplete because it depends on claim 19 which has been canceled. See MPEP § 608.01(n).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 1, 3, 5-7, 10-14, 20-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Wessel et al U.S. Patent No 6,275,685.

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As per claims 1, 13 and 21, Wessel et al discloses in a sending station operable to transmit a send signal, once amplified by an amplifier, the send signal formed of successive symbols, each symbol selected from a constellation of symbols, an improvement of apparatus for compensating for distortion introduced upon the send signal when amplified by the amplifier, said apparatus comprising: a phase modulator to adjust the phase of the receive signal is functionally equivalent to the claimed (phase rotator) (see figs.4, 7 element 18 or 21 and col.6, lines 39-54 and col.11, lines 60-62) coupled to receive indications of the send signal prior to amplification by the amplifier (see figs. 4, 7 element 22), said phase rotator for selectably rotating a phase component of the send signal responsive to a characterization of an AM (amplitude modulated -to-PM phase modulated) (see abstract and col.3, lines 15-20 and col.11, line 63) response of the amplifier that defines a phase distortion (see figs.4, 7 element 60) characteristic of the send signal, the phase distortion characteristic responsive to an input power level of the send signal and of a substantially constant level when the input power level of the send signal is less than a first threshold; and a adaptive predistorter is functionally equivalent to the claimed (distortion estimator) (see figs. 4, 6-7 element 70 and abstract and col.3, lines 15-20 and col.6, lines 50-67 and col.7, lines 64-67 and col.12, lines 8-63) coupled to receive the indications of the send signal prior to amplification by the amplifier and to receive indications of the send signal subsequent to amplification by the amplifier, said distortion estimator for estimating an indicia of distortion of the send signal due to amplification thereof by the amplifier (22), the indicia of distortion related to differences determined between values of the symbols, prior to amplification by the amplifier and subsequent

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to amplification by the amplifier and for providing a distortion estimate signal to said phase rotator, value distortion estimate signal determinative of rotation by said phase rotator of the phase component of the send signal.

As per claim 3, the apparatus of Wessel does include the characterization of the AM-to-PM response of the amplifier comprises at least a first parameter and wherein the distortion estimate signal comprises a value of the at least the first parameter (see abstract and col.3, lines 15-20).

As per claim 5, the apparatus of Wessel inherently includes said distortion estimator further determines a value of the input power level of the send signal and wherein the distortion estimate signal comprises an indication of the value of the input power level determined there at (see figs. 4, 7 and specification).

As per claim 7, the apparatus of Wessel inherently includes the phase distortion characteristic is proportional to the input power level of the send signal when the input power level is at least as great as the first threshold (see figs. 4, 7 and specification).

As per claim 10, the apparatus of Wessel inherently includes the sending station is further selectably operable to apply training data to the amplifier, the training data of known values,

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wherein said phase rotator is coupled to receive indications of the training data, and wherein said distortion estimator estimate an indicia of distortion of the training data due to amplification of the training data by the amplifier.

As per claim 11, the apparatus of Wessel does include the sending station is operable in a communication system which utilizes a QPSK (Quadrature Phase Shift keying) (see col.5, line 63) scheme, the send signal formed of QPSK symbols defined in the QPSK scheme, said phase rotator for rotating the phase components of the QPSK symbols responsive to values of the distortion estimate signal.

As per claim 12, the apparatus of Wessel does include the sending station forms a portion of a radio transceiver operable in a CDMA (code-division, multiple-access) (see abstract and col.1, lines 28-29) cellular communication system, wherein each QPSK symbol includes a phase component and a magnitude component, and wherein rotation of the phase component caused by said phase rotator alters the phase component of the QPSK symbol without altering the magnitude component of the QPSK symbol.

As per claim 14, the apparatus of Wessel inherently includes the send signal comprises a phase component and a magnitude component and wherein said operation of selectably rotating rotates the phase component of the send signal without altering the magnitude component of the send signal.

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As per claim 20, the apparatus of Wessel inherently includes the phase distortion characteristic is proportional to the input power level of the send signal when the input power level is at least as great as the first threshold.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Belcher et al U.S. Patent NO 5,892,397 teaches an adaptive compensation.

Briffa et al U.S. Patent No 6,075,411 teaches a method and apparatus for wideband predistortion.

Dolman U.S. patent No 6,396,345 B2 teaches a phase and amplitude detector.

Eisenberg et al U.S. Patent No 5,742,201 teaches a polar envelope correction.

Matui et al U.S. Patent No 5,448,203 teaches a negative feed back amplifier.

Bergsten et al U.S. Patent No 5,843,681 teaches an apparatus for compensating of phase rotation.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel Bayard whose telephone number is (703) 308-9573. The examiner can normally be reached on Monday-Thursday from 8:00 AM - 5:30 PM. The examiner can also be reached on alternate Fridays.

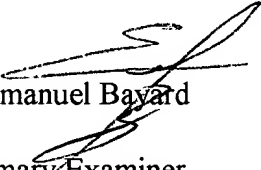
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H. Ghayour, can be reached on (703) 306-3034. The fax phone number for this Group is (703) 872-9314.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-3800.



Emmanuel Bayard

Primary Examiner

December 2, 2003